C6 L1B AND C5 Land Baseline test

Updated 11/18/2010

Science Test

- Objective
  - Evaluate the change in the C5 Land product from use of the C6 L1B LUT.
- Test Description
  - Baseline: Run the C5 Operational Land PGEs with C5 L1B (V5.0.44) and C5 L1B LUT (5.0.44). Data from this test is in archive set 230 of LAADS.
  - Test: Run the C5 Operation Land PGEs with C6 L1B (V6.1.6)and C6 L1B LUT (6.1.6). Data from this test is in archive set 204 of LAADs.
  - Test and baseline use same ancillary input datasets such as geolocation, cloud mask, land cover etc.
- Test Period
  - Two 16-day periods for Aqua and Terra
  - Starting data day 2003001 and 2003193

Summary

- C6 L1B (vs C5 L1B):
  - Visible differences between the C5 and C6 L1B present, but not very significant.
  - The difference varies along the scan line, minimum or nearly zero at nadir and maximum at the edge of the swath.
- C5 Land Products (C5 L1B vs C6 L1B)
  - LSR and downstream:
    - The difference in L1B is propagated to downstream and has similar distribution
    - Visible difference in LSR/VI/Lai/Fpar/BRDF-Albedo, again not very significant over land area.
    - L2 LSR show larger differences at the edge of the swath and also over ocean.
    - Most of the difference is within 1% of relative difference and 0.005 absolute difference.
  - Snow, Sea_Ice and Fire
    - Little or no difference, no significant comission or commission error
    - Difference from Cloud Mask is visible.
  - LST
    - Most of difference within 1K
    - Gradual increase of difference at higher latitude.
    - Missed retrievals may be due to difference in cloud mask

Results on the LDOPE's Science Test web page

Test Name	Test ID	AS #	PGE Version	Test Period	Run Status	Evaluation Status
C6 PGE30 (L2 Fire) Test	C6.9	260 230	PGE30	2003001-2003008, 2003193-2003200	Completed-09-27-2010	Evaluation in progress GB/DIFF GTB/DIFF
C6 Land Cover Test	C6.8	400	PGE41 5.1.0	2001001	On going	Evaluation in progress GB GTB
C6 Land Baseline Test	C6.7	204 230	All PGEs	2003001-2003016 2003193-2003208	On going	Evaluation in progress GB/DIFF GTB/DIFF
C6 L1B Test	C6.6	204 5	PGE02 6.1.2	2003001-2003016 2003193-2003208	Completed-10-30-2009	Evaluated GB KI
C6 LST Test	C6.5.2	245 230	PGE16	Terra/Aqua: 2003193-2003208	Completed-07-09-2010	Evaluation in progress GB/DIFF GTB/DIFF
	C6.5	191 232	PGE16	Terra:2008001-032 Aqua:2008161-192	Completed-02-02-2010	Test is failed because test and baseline didn't use the same L1B data. The test will be repeated and use different time period: 2003001-016, 2003193-208. GB KI GTB
Cloud Mask	C6.4			Evaluation of MOD09 Internal Cloud Mask	TBD	Pre-analysis Results: 1.Cloud Only 2.Cloud & Snow
LSR global test	C6.2.3	20 5	PGE11/PGE75	2003001-2005365 Terra & Aqua	Completed-06-21-2010	Evaluation in progress GB KI
	C6.2.2	20 5	PGE11/PGE75	2003001-2003365 Terra	Completed-06-29-2009	Evaluated GB KI
	C6.2.1		PGE11/PGE75	2003193 Terra	Completed-05-04-2009	Passed on 06-28-09 GB KI
L2G-lite/BRDF Test	C6.1.2	243 230	PGE13(5.0.28) PFE23(5.0.17)	2003001-2003016, 2003193-2003208	Completed-05-14-2010	Evaluated-Passed GB/DIFF GTB/DIFF KI
	C6.1.1	164 165	PGE13(5.0.19/5.0.18) PGE21(5.09/5.09) PGE23(5.0.15/5.0.14)	2008337-2008352	Completed-02-20-2009	Evaluated-Failed GTB KI

mm/dd/yy (Completed - End Date)	mm/dd/yy (In progress - Start Date)	mm/dd/yy (Planned - Start Date)
**Test Data Archive Set #	Baseline Data Archive Set #**		
GB: Global Browse	DIFF: Global Browse of Data Set Difference between Test and Baseline	GTB: Golden Tile Browse	KI: Know Issues

Clicking on the following items provides details on a separate page

Test Name: test description

AS: Links to the LAADS

Run Status: Test Production status

Evaluation Status: Provides links to results from this test such as

GB: global browse

GTB: golden tile browse

GB/DIFF: Global browse and browse of difference between data from two versions (archive sets)

GTB/DIFF: golden tile browse and browse of difference between data from the two versions (archive sets).

Test Browse on QA web page

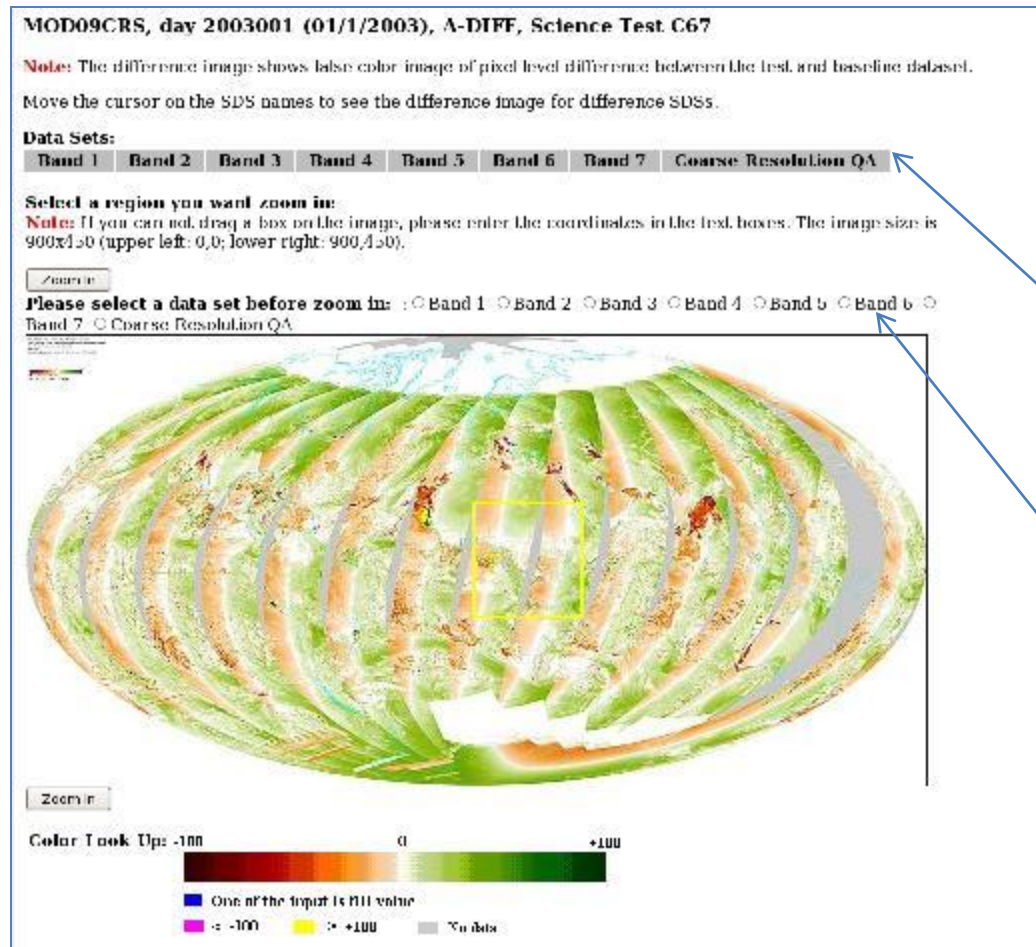The browse images are created from the coarse resolution (5km) products.

For each day and product, browse image from baseline and test version are provided.

The signed difference imageS (A-DIFF) and the relative difference images (R-DIFF) are displayed on a separate window.

R-DIFF = relative difference, A-DIFF: signed difference, DIFF = logical difference with commission and omission error for products like snow, sea_ice and Fire

Using the Difference Image Browse web page
One web page shows difference image for all the listed datasts

MOD09CRS, day 2003001 (01/1/2003), A-DIFF, Science Test C67

Note: The difference image shows false color image of pixel level difference between the test and baseline dataset.

Move the cursor on the SDS names to see the difference image for difference SDSs.

Data Sets:

| Band 1 | Band 2 | Band 3 | Band 4 | Band 5 | Band 6 | Band 7 | Coarse Resolution QA |

Select a region you want zoom in:
Note: If you can not drag a box on the image, please enter the coordinates in the text boxes. The image size is 900x450 (upper left: 0,0; lower right: 900,450).

Zoom in

Please select a data set before zoom in: ○Band 1 ○Band 2 ○Band 3 ○Band 4 ○Band 5 ○Band 6 ○ Band 7 ○ Coarse Resolution QA

Zoom in

Color Look Up: -100   0   +100

■ One of the input is fill value
■ < -100   ■ > +100   ▨ No data

Move the cursor over the datasets to view the difference image for that dataset.

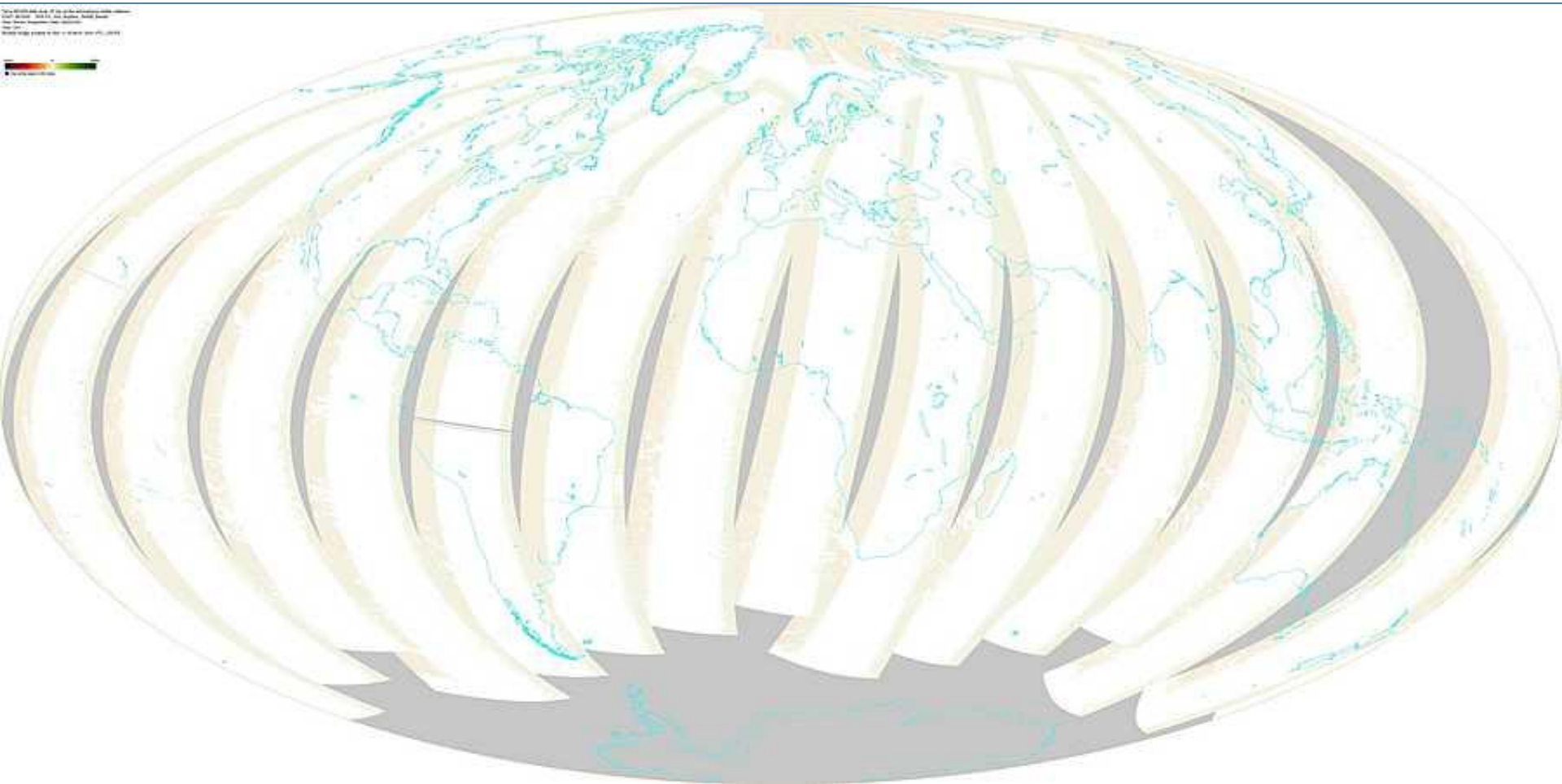To zoom on a particular difference image for a data set
1. Select the dataset
2. Identify the zoom area
3. Click on zoom

MOD02CRS: Signed Difference (baseline – test) 2003193, Band 2

MOD02CRS: Relative Difference (baseline –test)/baseline 2003193, Band 2

MOD09CRS: Signed Difference (baseline – test) 2003193, Band 2
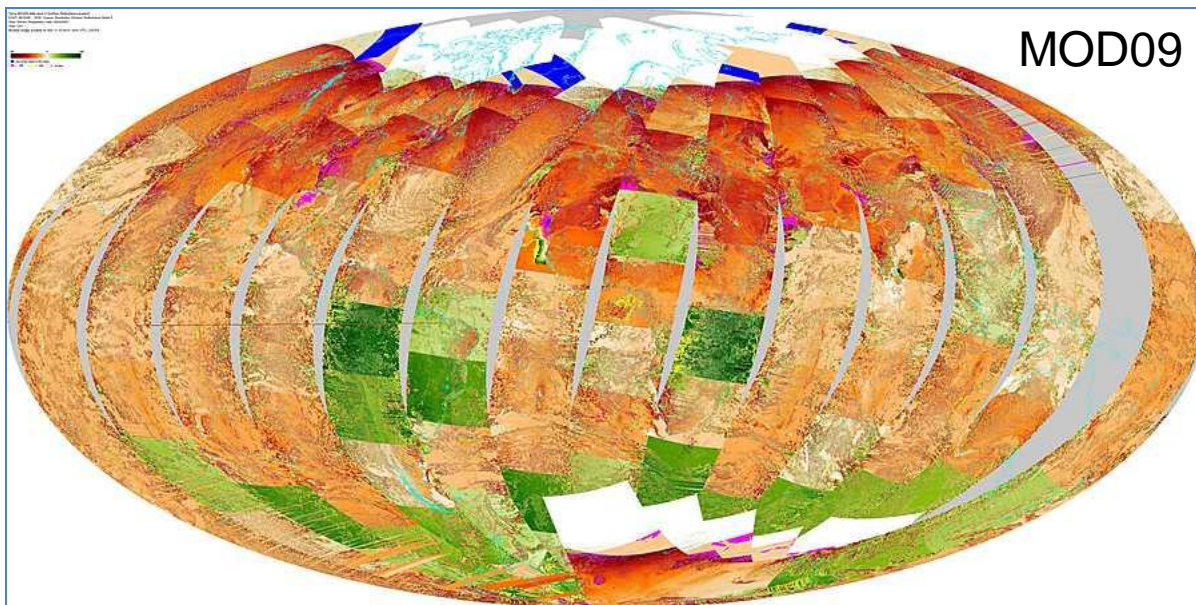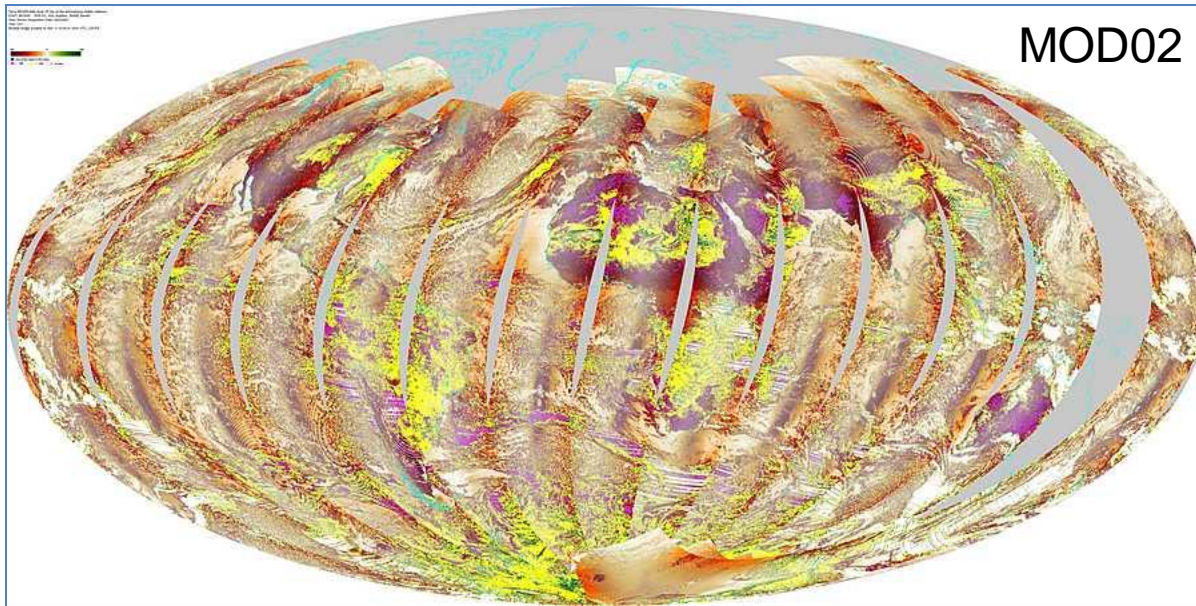
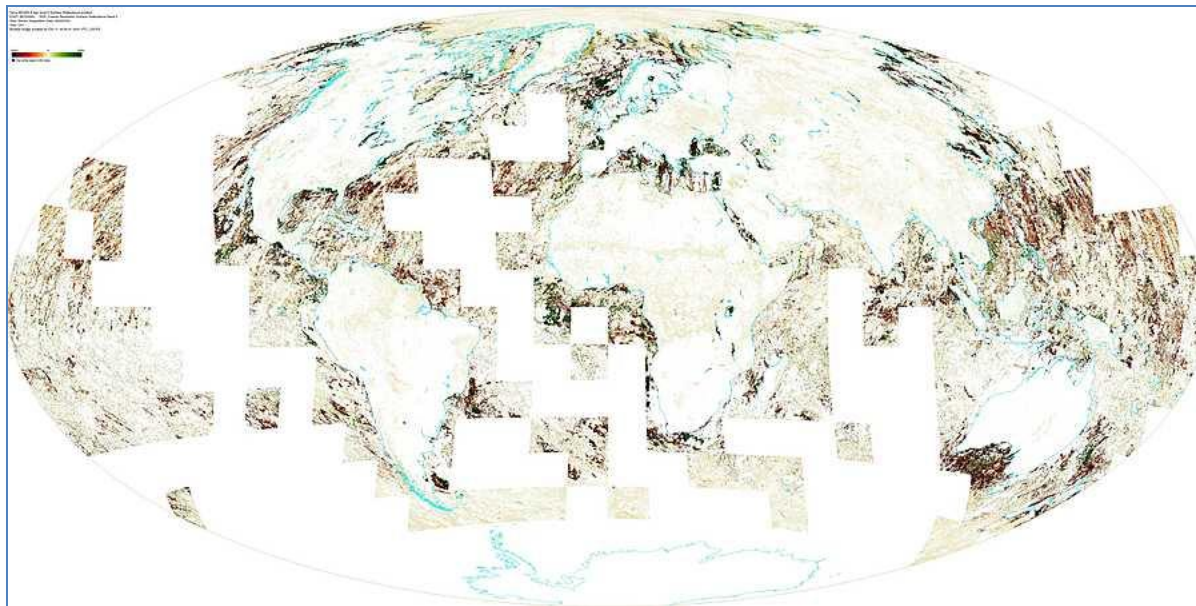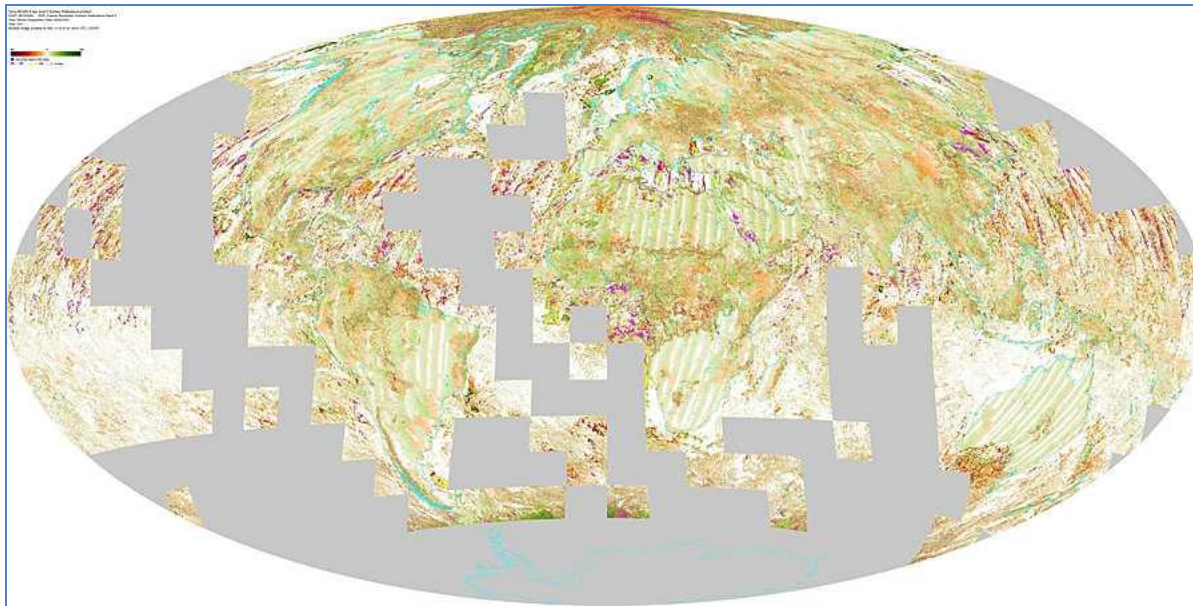# MOD09CRS: Relative Difference (baseline –test)/baseline 2003193, Band 2

Signed difference in Band 5 from day 2003001
Inter-granular difference in MOD09 but not in MOD02

MOD02

MOD09

MOD09A1 - Signed and relative difference Surface Reflectance
2003193, Band 2

MOD11B1 - Signed difference in Day and Night LST 2003193